

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended) An oxygen fired power generation system comprising:
a high pressure first combustor having a water recycle temperature control subassembly adapted and configured for operate at a first combustor pressure; and
a first turbine adapted and configured to:
receive a combustion products from said first combustor,
generate power by expansion of said combustion products
therethrough, and
and operate at a first turbine pressure;
an intermediate pressure a second combustor having a CO₂ recycle temperature control subassembly adapted and configured to operate at a second combustor pressure, said first combustor pressure being greater than that of said second combustor pressure; and
a second turbine adapted and configured to:
receive a drive gas from said second combustor,
generate power by expansion of said drive gas therethrough, and
operate at a second turbine pressure lower than that of said first turbine pressure.

Claims 2-3 (cancelled)

Claim 4: (withdrawn) A method for generating power, wherein said method comprises:

mixing a gaseous fuel, oxygen and water in a high pressure combustor;

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

producing a high temperature drive gas consisting substantially of steam and CO₂ products;

expanding said steam and CO₂ products through a high pressure turbine to generate power and a gas-mixture discharge;

collecting said discharge from said high pressure turbine and collecting a recycled gas stream comprised substantially of CO₂ into an intermediate pressure combustor;

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

firing the intermediate pressure combustor with additional gaseous fuel and oxygen;

producing a drive gas that expands through a power-generating turbine which generates a gas discharge;

collecting said gas discharge from said turbine in a heat recovery system;

cooling said gas discharge to remove discharge water and creating a gas stream fraction consisting primarily of CO₂;

returning at least a portion of said discharge water to the high pressure combustor;

controlling the operating temperature of the high pressure combustor to maintain the operating temperature thereof within a predetermined high pressure combustor operating range;

compressing at least a portion of said gas stream fraction;

returning at least a portion of said compressed gas stream fraction to said intermediate pressure combustor; and

controlling the operating temperature of the intermediate pressure combustor to maintain the operating temperature thereof within a predetermined intermediate pressure combustor operating range.

Claim 5 (withdrawn) The method of claim 4, wherein said heat recovery system comprises:

a recuperator, and

a heat exchanger.

Claim 6 (withdrawn) The method of claim 5 wherein said recuperator heats said compressed gas stream fraction with said gas discharge.

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

Claim 7 (withdrawn) The method of claim 5 wherein said heat exchanger preheats said water entering said high pressure combustor.

Claim 8 (withdrawn) The method of claim 6 wherein said heat exchanger preheats said water entering said high pressure combustor.

Claim 9 (withdrawn) The method of claim 8, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

Claim 10 (withdrawn) The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 11 (withdrawn) The method of claim 10, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 12 (withdrawn) The method of claim 8, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

Claim 13 (withdrawn) The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Claim 14 (withdrawn) The method of claim 13, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

Claim 15 (withdrawn) The method of claim 8, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

Claim 16 (withdrawn) The method of claim 8, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

Claim 17 (withdrawn) The method of claim 16, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

Claim 18 (withdrawn) A method for generating power, wherein said method comprises:

- mixing a gaseous fuel, oxygen and water in a high pressure combustor;

- producing a high temperature drive gas consisting substantially of steam and CO₂ products;

- expanding said steam and CO₂ products through a high pressure steam turbine to generate steam power and a steam discharge;

- collecting said steam discharge from said steam turbine and collecting a recycled gas stream comprised substantially of CO₂ into an intermediate pressure combustor;

- firing the intermediate pressure combustor with additional gaseous fuel and oxygen;

- producing a drive gas that passes through a heat exchanger wherein said heat exchanger heats a compressed nitrogen stream from an air separation unit and cools said drive gas;

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

expanding said cooled drive gas through a gas turbine which generates gas power and a gas discharge containing discharge water;
collecting said gas discharge from said gas turbine in a heat recovery system;
cooling said gas discharge to remove said discharge water and creating a gas stream fraction;
compressing said gas stream fraction;
returning at least a portion of said discharge water to the high pressure combustor;
controlling the operating temperature of the high pressure combustor to maintain the operating temperature thereof within a predetermined high pressure combustor operating range;
compressing said gas stream fraction;
returning at least a portion of said compressed gas stream fraction to said intermediate pressure combustor; and
controlling the operating temperature of the intermediate pressure combustor to maintain the operating temperature thereof within a predetermined intermediate pressure combustor operating range.

Claim 19 (withdrawn) The method of claim 18, wherein said air separation unit comprises the steps of:

passing a high pressure nitrogen stream through a nitrogen compressor;
passing said compressed nitrogen gas stream through a heating system;
expanding said heated compressed nitrogen gas stream through a nitrogen turbine which generates nitrogen power and nitrogen gas discharge;
collecting said nitrogen gas discharge from said nitrogen turbine in a heat recovery system;

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

recovering residual heat from said nitrogen gas discharge using a feed water stream which creates a nitrogen gas stream fraction; and
returning said feed water stream to said high pressure combustor.

Claim 20 (withdrawn) The method of claim 18, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

Claim 21 (withdrawn) The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 22 (withdrawn) The method of claim 21, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 23 (withdrawn) The method of claim 18, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

Claim 24 (withdrawn) The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Claim 25 (withdrawn) The method of claim 24, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

Claim 26 (withdrawn) The method of claim 18, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

Claim 27 (withdrawn) The method of claim 18, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

Claim 28 (withdrawn) The method of claim 27, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

Claim 29 (withdrawn) The method of claim 19, wherein said predetermined high pressure combustor operating range is between 800 degrees and 2000 degrees Fahrenheit.

Claim 30 (withdrawn) The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 31 (withdrawn) The method of claim 30, wherein said predetermined intermediate pressure combustor operating range is between 1500 degrees and 3000 degrees Fahrenheit.

Claim 32 (withdrawn) The method of claim 19, wherein said predetermined high pressure combustor operating range is between 900 degrees and 1500 degrees Fahrenheit.

Application No. 10/698,842
Amendment dated March 2, 2006
Reply to Office Action of December 2, 2005

Claim 33 (withdrawn) The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Claim 34 (withdrawn) The method of claim 33, wherein said predetermined intermediate pressure combustor operating range is between 1800 degrees and 2600 degrees Fahrenheit.

Claim 35 (withdrawn) The method of claim 19, wherein said predetermined high pressure combustor operating range is between 1000 degrees and 1200 degrees Fahrenheit.

Claim 36 (withdrawn) The method of claim 19, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.

Claim 37 (withdrawn) The method of claim 36, wherein said predetermined intermediate pressure combustor operating range is between 2000 degrees and 2400 degrees Fahrenheit.